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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,557	09/30/2003	Terry L. Schneider	7784-000553CPC	6819

27572 7590 01/23/2007  
HARNESSE, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
BLOOMFIELD HILLS, MI 48303

EXAMINER
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CROUSE, BRETT ALAN

ART UNIT	PAPER NUMBER
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1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/675,557	<b>Applicant(s)</b> SCHNEIDER, TERRY L.	
	<b>Examiner</b> Brett A. Crouse	<b>Art Unit</b> 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Miscellaneous***

The RCE filed 21 December 2006 is acknowledged.

In view of applicant's remarks and upon further consideration of the presently claimed invention, the rejections of record as presented in the previous office action mailed on 21 August 2006 have been withdrawn.

The following new rejections apply as follows:

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 6, 9, 11, 14, 15, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by (Terasaka, US 5,770,305) hereinafter known as Terasaka.

As to claims 1, 2, 6, and 9:

Column 2, line 65 through column 3, line 9 with reference to figure 4, teach an anisotropic conductive film formed of an epoxy resin and contributing to adhesion. Conductive particles dispersed in the resin can be Titanium – Nickel alloy.

As to claim 5:

Column 2, line 65 through column 3, line 9 with reference to figure 4, further teaches that the alloy expands or contracts in response to stress and the alloy

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particles can be crushed due to stress. The various shaped encompassed by the base particles and stress induced deformations is held to encompass spheres, ovals, and cylinders.

As to claim 11:

Column 3, lines 17-18, teach that the particles have a mean particle size of 8 $\mu$ m.

As to claims 14, 15, and 21:

The recitation of intended use of the SMA particles in the adhesive film is given little patentable weight. The disclosure of Titanium – Nickel alloy particles in an epoxy resin film is held to be functionally equivalent. The limitation granules is held to be encompassed within the particle size distribution disclosure of a mean particle size of 8 $\mu$ m.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over (Terasaka, US 5,770,305) hereinafter known as Terasaka as evidenced by <http://herkules.oulu.fi/isbn9514252217/html/x317.html>, Fundamental characteristics of nickel-titanium shape memory alloy, Oulun Yliopisto.

The teachings of Terasaka as in the above rejection are relied upon.

Terasaka does not teach the resin composition in the form of a paste. It would have been obvious to one of ordinary skill in the art at the time of invention to formulate the resin viscosity for ease of application.

Terasaka further does not teach an austenitic or martensitic crystal structure of the alloy. It is noted that a nickel-titanium alloy is inherently either in an austenitic or martensitic crystal structure dependent on temperature and the relative percentages of the constituent metals, as evidenced by Fundamental characteristics of nickel-titanium shape memory alloy, and it is therefore obvious that it will exist in the film or phase as such. Terasaka further does recite a volume percent for amount of alloy within the resinous material. Column 3, lines 33-38 with reference to figure 5 teaches that the alloy content of the resin is 3 weight percent. The density of nickel-titanium alloy is about 6.5 g/cm<sup>3</sup> and the density of for example, phenolic resin is about 1.25 g/cm<sup>3</sup>. This results in a volume percentage of about 0.58 percent. This teaching is held to suggest about 1 volume percent as required by claims 7, 8, 18, 19, and 28, which could be easily optimized by one of ordinary skill in the art.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brett A. Crouse whose telephone number is 571-272-6494. The examiner can normally be reached on Monday - Friday 6:00AM - 2:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BAC 16 January 2007

  
RENA DYE  
SUPERVISORY PATENT EXAMINER  
AU 1774